

**In the claims:**

- 1 1. A method for searching a peer-to-peer computer network comprising:  
2 collecting data about a plurality of computers within the network, including a  
3 network location of each of the plurality of computers;  
4 selecting at least one computer to be a selected computer, based on the collected  
5 data; and  
6 routing search queries from a user to the selected computer.
- 1 2. The method of claim 1, wherein said collecting data about a plurality of computers  
2 within the network further comprises:  
3 sending a signal to at least one of the plurality of computers;  
4 receiving the signal upon its return from the at least one computer; and  
5 forming a profile characterizing the at least one computer, based on information  
6 provided by the signal.
- 1 3. The method of claim 2, wherein the profile comprises a round trip time taken by  
2 the signal during its travel to and from the at least one computer.
- 1 4. The method of claim 2, wherein the profile comprises information on the number  
2 of files contained within the at least one computer.
- 1 5. The method of claim 2, wherein the profile comprises information on the amount  
2 of content available to the network on the at least one computer.
- 1 6. The method of claim 2, wherein the profile comprises information on the capability  
2 of the at least one computer to process a search query.
- 1 7. The method of claim 2, wherein the profile comprises information on the number  
2 of connected computers encountered by the signal during its travel to and from the at least  
3 one computer.

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1 8. The method of claim 2, wherein the profile comprises information on the number  
2 of additional computers connected to the at least one computer.

1 9. The method of claim 1, wherein the profile comprises information on a frequency  
2 with which the plurality of computers are connected to the network.

1 10. The method of claim 1, wherein the profile comprises information on which of the  
2 plurality of computers are currently connected to the network.

1 11. The method of claim 1, wherein said collecting data about a plurality of computers  
2 within the network further comprises:

3 collecting a plurality of statistical measures which characterize each of the plurality  
4 of computers,

5 and wherein said selecting the selected computer based on the collected data  
6 further comprises:

7 assigning a weighted score to each statistical measure for each of the plurality of  
8 computers;

9 combining the weighted scores to obtain a rank for each of the plurality of  
10 computers; and

11 ranking the plurality of computers according to the resulting ranks.

1 12. The method of claim 1, wherein said collecting data about a plurality of computers  
2 within the network further comprises:

3 monitoring data exchanges which occur between the plurality of computers.

1 13. The method of claim 12, further comprising:

2 storing the collected data in a memory, wherein at least a portion of the collected  
3 data is content data which comprises information on the content available for searching on  
4 the plurality of computers.

1 14. The method of claim 13, further comprising:

2 removing the content data after a predetermined period of time;

3 sending common user search queries into the network on a periodic basis; and

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4 storing the results in the memory.

1 15. The method of claim 13, wherein said storing the content data in a memory  
2 comprises:

3 choosing a portion of the content data to store based on previous user requests.

1 16. The method of claim 13, wherein said collecting data about a plurality of  
2 computers within the network further comprises:

3 monitoring a current connectivity status of each of the plurality of computers,

4 and wherein said selecting at least one computer to be a selected computer based  
5 on the collected data further comprises:

6 selecting the selected computer based on the content data and the current  
7 connectivity status.

1 17. The method of claim 16, wherein said collecting data about a plurality of  
2 computers within the network further comprises:

3 collecting a plurality of statistical measures which characterize each of the plurality  
4 of computers,

5 and wherein said selecting the selected computer based on the collected data  
6 further comprises:

7 assigning a weighted score to each statistical measure for each of the plurality of  
8 computers;

9 combining the weighted scores to obtain a rank for each of the plurality of  
10 computers;

11 ranking the plurality of computers according to the resulting ranks; and

12 selecting the at least one computer based on the content data, the current  
13 connectivity status and the ranks.

1 18. The method of claim 13, further comprising:

2 storing a portion of the content data which identifies a type of file available for  
3 searching on the plurality of computers; and

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4 selecting the selected computer based at least in part on the stored file-type content  
5 data.

1 19. The method of claim 1, wherein said selecting at least one computer to be a  
2 selected computer further comprises:

3 selecting at least a second selected computer based on the data,  
4 and wherein said routing a search query from a user to the selected computer  
5 further comprises:

6 routing a search query from the user to the second selected computer after a  
7 predetermined period of time, or in response to a user request.

1 20. The method of claim 2, wherein said sending a signal to at least one of the plurality  
2 of computers further comprises:

3 sending the signal from a plurality of geographical locations which are remote  
4 from one another, wherein the geographical locations are selected based on their  
5 respective proximity to a plurality of users.

1 21. The method of claim 1, wherein said collecting data about a plurality of computers  
2 within the network is performed periodically, so that the collected data is approximately  
3 current.

1 22. The method of claim 1, wherein said collecting data about a plurality of computers  
2 within the network further comprises:

3 collecting data about a predetermined number of the plurality of computers at a  
4 first predetermined time interval;

5 ranking the computers based on the collected data;

6 retaining a set of hub computers which make up a predetermined percentage of the  
7 most highly-ranked computers; and

8 collecting data about only the set of hub computers at a second predetermined time  
9 interval which is smaller than the first predetermined time interval.

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- 1 23. A system by which a user may establish an optimal connection to a peer-to-peer  
2 computer network, comprising:  
3 a monitor which measures data about a plurality of computers within the network;  
4 and  
5 a selector which selects at least one computer to be a selected computer, based on  
6 the measured data, and which outputs a network location of the selected computer to the  
7 user, to thereby allow the user to connect to the selected computer.
- 1 24. The system of claim 23, wherein said monitor further comprises:  
2 a profiler which collects the measured data by sending a signal to at least one of  
3 the plurality of computers and receiving the signal therefrom, to thereby form a profile of  
4 the at least one of the plurality of computers; and  
5 a database which stores the collected data.
- 1 25. The system of claim 24, wherein the profile comprises a round trip time taken by  
2 the signal during its travel to and from the at least one computer.
- 1 26. The system of claim 24, wherein the profile comprises information on the number  
2 of files contained within the at least one computer.
- 1 27. The system of claim 24, wherein the profile comprises information on the amount  
2 of content available to the network on the at least one computer.
- 1 28. The system of claim 24, wherein the profile comprises information on the  
2 capability of the at least one computer to process a search query.
- 1 29. The system of claim 24, wherein the profile comprises information on the number  
2 of connected computers encountered by the signal during its travel to and from the at least  
3 one computer.
- 1 30. The system of claim 24, wherein the profile comprises information on the number  
2 of additional computers connected to the at least one computer.

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1 31. The system of claim 24, wherein the profile comprises information on a frequency  
2 with which the at least one computer is connected to the network.

1 32. The system of claim 24, wherein the profile comprises information on which of the  
2 plurality of computers are currently connected to the network.

1 33. The system of claim 23, wherein the monitor is a computer within the network, and  
2 further wherein at least a portion of the measured data is collected by monitoring data  
3 exchanges which travel through the monitor as they are transmitted through the network.

1 34. The system of claim 23, further comprising:  
2 a memory which is a computer within the network, and which collects content data  
3 comprising information on the content available for searching on the plurality of  
4 computers by monitoring data exchanges which travel through the memory as they are  
5 transmitted through the network.

1 35. The system of claim 34, wherein the memory removes the content data after a  
2 predetermined period of time,  
3 and further wherein the memory sends common user search queries into the  
4 network on a periodic basis and stores the results.

1 36. The system of claim 35, wherein a portion of the removed content data which  
2 identifies a type of file available for searching on the plurality of computers is separately  
3 stored,  
4 and further wherein the selector selects the selected computer based at least in part  
5 on the stored file-type content data.

1 37. The system of claim 34, wherein the memory chooses a portion of the content data  
2 to store based on previous user requests.

1 38. The system of claim 34, wherein the monitor monitors a current connectivity status  
2 of each of the plurality of computers,

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3 and further wherein the selector selects the selected computer based on the content  
4 data and the current connectivity status.

1 39. The system of claim 34, wherein the monitor collects a plurality of statistical  
2 measures which characterize each of the plurality of computers,

3 and further wherein the selector assigns a weighted score to each of the statistical  
4 measures and combines the weighted scores to thereby rank the plurality of computers  
5 accordingly, and thereafter selects the at least one computer based on the content data, the  
6 current connectivity status and the ranks.

1 40. The system of claim 23, wherein the selector selects at least a second selected  
2 computer based on the data, and further wherein the selector outputs a network location of  
3 the second selected computer to the user after a predetermined period of time, or in  
4 response to a user request.

1 41. The system of claim 24, wherein the profilers are located at a plurality of  
2 geographical locations which are remote from one another, wherein the geographical  
3 locations are selected based on their respective proximity to a plurality of users.

1 42. The system of claim 23, wherein the monitor and selector are located on a user  
2 computer.

1 43. The system of claim 34, wherein the memory is located on a user computer.

1 44. The system of claim 23, wherein the host monitor collects data about a  
2 predetermined number of the plurality of computers at a first predetermined time interval,  
3 and the host selector ranks the computers accordingly, and further wherein the host  
4 monitor retains a set of hub computers which make up a predetermined percentage of the  
5 most highly-ranked computers, and thereafter collects data about only the set of hub  
6 computers at a second predetermined time interval which is smaller than the first  
7 predetermined time interval.

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1 45. A computer program product for enabling a processor in a computer system to  
2 implement a system for optimally connecting to a peer-to-peer computer network, said  
3 computer program product comprising:

4 a computer usable medium having computer readable program code means  
5 embodied in said medium for causing a program to execute on the computer system, said  
6 computer readable program code means comprising:

7 means for collecting data about a plurality of computers within the network,  
8 including a network location of each of the plurality of computers;

9 means for selecting at least one computer to be a selected computer, based on the  
10 collected data; and

11 means for routing search queries from a user to the selected computer.

1 46. The computer program product of claim 45, wherein said means for collecting data  
2 about a plurality of computers within the network further comprises:

3 means for sending a signal to at least one of the plurality of computers;

4 means for receiving the signal upon its return from the at least one computer; and

5 means for forming a profile characterizing the at least one computer, based on  
6 information provided by the signal.

1 47. The computer program product of claim 45, wherein said means for collecting data  
2 about a plurality of computers within the network further comprises:

3 means for collecting a plurality of statistical measures which characterize each of  
4 the plurality of computers,

5 and wherein said means for selecting the selected computer based on the collected  
6 data further comprises:

7 means for assigning a weighted score to each statistical measure for each of the  
8 plurality of computers;

9 means for combining the weighted scores to obtain a rank for each of the plurality  
10 of computers; and

11 means for ranking the plurality of computers according to the resulting ranks.

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1 48. The computer program product of claim 45, wherein said means for collecting data  
2 about a plurality of computers within the network further comprises:  
3 means for monitoring data exchanges which occur between the plurality of  
4 computers.

1 49. The computer program product of claim 48, further comprising:  
2 means for storing the collected data in a memory, wherein at least a portion of the  
3 collected data is content data which comprises information on the content available for  
4 searching on the plurality of computers.

1 50. The computer program product of claim 49, further comprising:  
2 means for removing the content data after a predetermined period of time;  
3 means for sending common user search queries into the network on a periodic  
4 basis; and  
5 means for storing the results in the memory.

1 51. The computer program product of claim 49, wherein said means for storing the  
2 content data in a memory comprises:  
3 means for choosing a portion of the content data to store based on previous user  
4 requests.

1 52. The computer program product of claim 49, wherein said means for collecting data  
2 about a plurality of computers within the network further comprises:  
3 means for monitoring a current connectivity status of each of the plurality of  
4 computers,  
5 and wherein said means for selecting at least one computer to be a selected  
6 computer based on the collected data further comprises:  
7 means for selecting the selected computer based on the content data and the current  
8 connectivity status.

1 53. The computer program product of claim 45, wherein said means for collecting data  
2 about a plurality of computers within the network further comprises:

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3 means for collecting a plurality of statistical measures which characterize each of  
4 the plurality of computers,

5 and wherein said means for selecting the selected computer based on the collected  
6 data further comprises:

7 means for assigning a weighted score to each statistical measure for each of the  
8 plurality of computers;

9 means for combining the weighted scores to obtain a rank for each of the plurality  
10 of computers;

11 means for ranking the plurality of computers according to the resulting ranks; and

12 means for selecting the at least one computer based on the content data, the current  
13 connectivity status and the ranks.

1 54. The computer program product of claim 45, further comprising a plurality of  
2 means for sending the signal from a plurality of geographical locations which are remote  
3 from one another, wherein the geographical locations are selected based on their  
4 respective proximity to a plurality of users.

1 55. A method for optimizing a computer's access to information, the method  
2 comprising:

3 maintaining a first database which includes status information about computers  
4 within the network;

5 maintaining a second database which includes content information about the  
6 computers within the network;

7 filtering the contents of the second database using the contents of the first database,  
8 at a time of a user request for information; and

9 accessing at least one computer within the network based on the filtered contents  
10 of the second database.

1 56. The method of claim 55, wherein said maintaining a first database which includes  
2 status information about computers within the network further comprises:

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